

Appl. No.: 09/828,130
Amendment dated August 4, 2003
Reply to Office Action of May 2, 2003

Amendment to the Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): Apparatus for applying a flowable adhesive to selected portions of a running web of wrapping material for smokers' products, comprising:

at least one source of adhesive;

an applicator having at least one adhesive-discharging orifice adjacent a course for the running web;

means for connecting said at least one source with said applicator; and

means for regulating - including interrupting - the flow of adhesive in said connecting means, comprising at least one rotary valve, wherein said at least one rotary valve has a peripheral surface and a plurality of rotary section having at least one irregularity on the peripheral surface.

Claim 2. (currently amended): The apparatus of claim 1, wherein said at least one valve includes a valve body and at least one rotor disposed in and having a the peripheral surface defining with said body at least one arcuate path for the flow of adhesive from an inlet to an outlet of said at least one valve, said peripheral surface including the at least one irregularity arranged to influence the flow of adhesive from said inlet to said outlet.

Claim 3. (original): The apparatus of claim 2, wherein said at least one irregularity includes at least one of (a) at least one recess, (b) at least one groove, (c) at least one projection, and (d) at least one lobe.

Claim 4. (original): The apparatus of claim 2, wherein said body includes a housing having a chamber for said at least one rotor.

Claim 5. (original): The apparatus of claim 1, wherein said applicator has at least one adhesive storing chamber communicating with said at least one orifice.

Claim 6. (original): The apparatus of claim 1, wherein said at least one orifice has at least one parameter, including the depth and the capacity thereof, which is variable to thus influence the quantity of adhesive being applied to the web by said applicator.

Claim 7. (original): The apparatus of claim 1, wherein said orifice is adjustable.

Claim 8. (original): The apparatus of claim 1, wherein said applicator has a first width, said at least one orifice has a second width, and at least one of said widths is adjustable.

Claim 9. (original): The apparatus of claim 1, wherein said applicator has an arcuate web-contacting surface adjacent said course for the web.

Claim 10. (original): The apparatus of claim 1, further comprising means for varying the pressure of adhesive in said connecting means.

Claim 11. (original): The apparatus of claim 1, wherein said applicator includes a plurality of nozzles each having at least one adhesive-discharging orifice adjacent said course for the web, said connecting means including discrete conduits each connecting said at least one source with a different one of said nozzles, and further comprising means for individually selecting the pressure of adhesive in at least two of said conduits.

Claim 12. (original): The apparatus of claim 1, wherein said applicator includes at least two nozzles each having at least one adhesive-discharging orifice adjacent said course, said

connecting means including at least two conduits each connecting said at least one source with a different one of said nozzles, and further comprising means for maintaining the pressure of adhesive in one of said at least two conduits at a value which at least approximates the pressure of adhesive in the other of said at least two conduits.

Claim 13. (original): The apparatus of claim 12, wherein said connecting means further includes an additional conduit communicating with said at least one source, said at least two conduits having inlets communicating with said additional conduit and said pressure maintaining means including at least one pump disposed in said additional conduit upstream of said inlets of said at least two conduits.

Claim 14. (original): The apparatus of claim 1, wherein at least a portion of said applicator has a coat of a material opposing accumulations of adhesive on the applicator.

Claim 15. (original): The apparatus of claim 1, further comprising means for monitoring at least one variable parameter of adhesive on the web.

Claim 16. (currently amended): The apparatus of claim ~~1~~ 15, wherein said monitoring means includes means for ascertaining the quantity of adhesive being applied to the web.

Claim 17. (original): The apparatus of claim 15, wherein said monitoring means includes means for generating signals denoting the monitored at least one parameter, and further comprising means for adjusting at least one of said source, said applicator, said connecting means and said regulating means as a function of said signals.

Claim 18. (currently amended): The apparatus of claim 1, wherein said applicator comprises a plurality of nozzles each having at least one orifice and said regulating means

comprises a rotary valve for each of said nozzles, each of said valves including a valve body and a rotor disposed in and having a the peripheral surface defining with said body at least one arcuate path for the flow of adhesive from an inlet to an outlet of the respective valve, said peripheral surface of each rotor including the at least one irregularity arranged to influence the flow of adhesive from the inlet to the outlet of the respective valve.

Claim 19. (original): The apparatus of claim 18, wherein each of said peripheral surfaces is provided with a plurality of irregularities.

Claim 20. (original): The apparatus of claim 1, further comprising means for advancing the web along said course at a first speed, means for rotating a rotor of said at least one valve at a second speed, and means for synchronizing the operation of said advancing means with the operation of said rotating means.

Claim 21. (original): The apparatus of claim 1, comprising at least two sources respectively containing different first and second adhesives, said applicator including first and second nozzles each having at least one orifice adjacent said course for the web and said connecting means including at least one first conduit arranged to convey first adhesive from the respective source to said first nozzle and at least one second conduit arranged to convey second adhesive from the respective source to said second nozzle.

Claim 22. (original): The apparatus of claim 1, wherein said valve has a hollow stator and a rotor rotatable in said stator about a predetermined axis, said stator and said rotor defining an arcuate groove disposed in a plane normal to said axis and extending from an inlet to an outlet of said valve.

Claim 23. (original): The apparatus of claim 22, wherein said groove extends along an

arc approximating but less than 360°.

Claim 24. (original): The apparatus of claim 1, wherein said applicator includes a plurality of nozzles each having at least one orifice and each adjacent a different portion of said course, said connecting means including a plurality of conduits, at least one for each of said nozzles and each connecting said source with the respective nozzle.

Claim 25. (original): The apparatus of claim 24, wherein said source includes a plurality of discrete sources of different adhesives, said conduits including at least two conduits connecting one of said discrete sources with the respective nozzles.

Claim 26. (original): The apparatus of claim 24, wherein said regulating means includes a plurality of valves each having a hollow body and a rotor turnable in the respective body about a predetermined axis, each rotor having a peripheral surface defining with the respective body a path leading to one of said nozzles, said bodies and said rotors cooperating to confine the adhesive to flow to the respective nozzles.

Claim 27. (original): The apparatus of claim 26, wherein said rotors constitute substantially disc-shaped sections of a rotor which is common to all of said valves, said hollow bodies forming part of a stator common to and surrounding all of said disc-shaped sections, the peripheral surface of each of said disc-shaped sections having at least one irregularity arranged to influence the flow of adhesive within the respective hollow body.

Claim 28. (original): The apparatus of claim 27, wherein at least one of said disc-shaped sections cooperates with the respective hollow body to establish a seal against leakage of adhesive from the respective valve.

Claim 29. (original): The apparatus of claim 26, wherein said hollow bodies have internal surfaces surrounding said rotor and provided with arcuate grooves for the flow of adhesive along the respective paths, said grooves having centers of curvature on said axis.

Claim 30. (original): The apparatus of claim 29, wherein at least one of said grooves extends along an arc approximating but less than 360°.

Claim 31. (original): The apparatus of claim 24, wherein at least one of said nozzles has at least one adhesive-storing chamber communicating with the respective at least one orifice.

Claim 32. (withdrawn): A method of applying adhesive to selected portions of one side of a web of wrapping material for smokers' products, comprising the steps of:

advancing the web lengthwise along a predetermined course;
placing first and second nozzles adjacent the one side of the web in a predetermined portion of said course;
establishing first and second sources respectively containing first and second flowable adhesives;
conveying adhesives from said first and second sources to said first and second nozzles;
and
utilizing the first and second nozzles for the application of first and second adhesives to said selected portions of one side of the web in said course.

Claim 33. (withdrawn): The method of claim 32, wherein said conveying step includes inducing the flow of first and second adhesives to the respective nozzles along discrete first and second paths.

Claim 34. (withdrawn): The method of claim 32, wherein said utilizing step includes

intermittently applying at least one of the adhesives to the one side of the web in said course.

Claim 35. (withdrawn): The method of claim 34, wherein said step of intermittently applying at least one of the adhesives includes regulating the flow of the at least one adhesive by a rotary valve.

Claim 36. (withdrawn): The method of claim 32, wherein said conveying step includes utilizing at least one pump for each of the first and second adhesives.

Claim 37. (withdrawn): The method of claim 32, wherein said conveying step includes conveying the first and second adhesives along discrete first and second paths, and further comprising the step of introducing at least one additive into the adhesive in at least one of the first and second paths.

Claim 38. (withdrawn): A method of making rod-shaped smokers' products wherein a tubular envelope confines smokable material and at least a portion of the envelope consists of a section of a web one side of which is at least partially coated with at least one film of an adhesive, comprising the steps of:

advancing the web lengthwise along a predetermined course;

establishing at least one source of flowable adhesive;

positioning an orifice of at least one nozzle adjacent a portion of said course at the one side of the web;

conveying adhesive along at least one path extending from the at least one source to the at least one nozzle; and

regulating the flow of adhesive in said path, including employing at least one rotary valve.

Claim 39. (withdrawn): A method of making rod-shaped smokers' products wherein a tubular envelope confines a smokable material and at least a portion of the envelope consists of a section of a web one side of which is at least partially coated with at least one film of adhesive, comprising the steps of:

- advancing the web lengthwise along a predetermined course;
- positioning orifices of at least two nozzles adjacent a portion of said course at one side of the web;
- establishing at least two sources of flowable adhesive; and
- conveying flowable adhesive from each of the sources along a discrete path to a different one of said nozzles.

Claim 40. (withdrawn): The method of claim 39, further comprising the step of maintaining the adhesives in said paths at different pressures.

Claim 41. (withdrawn): As a novel article of manufacture, a rod-shaped smokable product including a smokable filler and a tubular envelope consisting at least in part of a section of a web having one side at least partially coated with at least one film of adhesive, said at least one film containing at least two different types of adhesive.

Claim 42. (withdrawn): The product of claim 41, wherein at least one of said adhesive types consists at least in part of a combustion retarding material.

Claim 43. (withdrawn): The product of claim 41, wherein at least one of said adhesive types contains at least one flavoring agent.

Claim 44. (withdrawn): The product of claim 41, wherein the filler consists of cigarette tobacco and a filter mouthpiece.

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Claim 45. (withdrawn): The product of claim 41, wherein said section is a convoluted uniting band of tipping paper.

Claim 46. (withdrawn): The product of claim 45, wherein the band has a first annular portion at least partially coated with adhesive containing at least one flavoring agent and a second, annular portion at least partially coated with adhesive consisting of or containing a combustion retarding material.